432 MHz AND ABOVE EME NEWS

APRIL VOL 28 #4

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CONDITIONS

This month activity was spread over 2 weekends. I found conditions not to be especially good on either 70 or 23 cm. 1296 activity was up during the pre-contest SW and during the contest. On the other hand 432 SW operation seemed light. This was probably due to prep for the contest on 1296. The shoe will be on the other foot in April with the DUBUS/REF Contest focusing on 432 and 2300 up.

DUBUS/REF CONTEST HIGH SCORES

It appears that ZS6AXT has the top 23 cm score with 38x23, but the reports received thus far are far from complete. The next highest reports were that of N2IQU with 33x?, K2UYH with 27x19 and W2UHI with 24x16. I have also heard rumors that OE5JFL, whose signal was much weaker that normal, made about 10 QSOs using only an extended horn feed!

GREENLAND DXPEDITION

A dxpedition to Greenland is planned for 29 May to 5 June on 1296, 432 and 144 MHz using the call OX2K. The group plans to use an available 32 m dish on 23 cm - GP46MX, 4 x 28 el 9 wl yagis on 70 cm - GP47TA, and 4 x 5 wl yagis on 2 m - GP47TA. They will also be QRV 24 hours on 6 m and HF - GP47TA. In 1988 Claus, OZ1FDH, and Bo, OZ1DJJ/OX3LX made the 1st contact from Greenland via EME on 2 m. The idea of making a bigger VHF dxpedition was born after contacts with W5UN and KB8RQ. After visiting the 32 m dish in Sondrestrom the idea of an EME dypedition seemed very possible. After talking to Holger, OX3HI, who lives near the dish in Sondrestrom, it was evident that permission to use the dish could be obtained, but not on all bands. After Michael, OZ2ELA/OX3LG, a well know HF/VHF/UHF/SHF DXer in 1998 began working at TELE Greenland, the idea of a EME dxpedition took a very fast turn. Credit must be given to Michael for his enthusiasm in this project. Without him and Holger, an EME dxpedition on this scale would not be taking place. The objective of the dxpedition is to make as many contacts via the moon on 2 m, 70 cm and 23 cm as possible. They will also be active round the clock on 6 m and shortwave. Another intention is to put Greenland on the world map and show how friendly

and beautiful this country is, and to try to make it easy for other radio amateurs to go on a dxpedition to Sondrestrom in Greenland. Six different stations will be on air at the same time on all bands, and a crew of about 25 operators is involved. More information about the dxpedition can be found at the dxpedition WEB page:

OX2K DX EXPEDITION

CT1DMK

Luis reports on his recent moon activity -- I was QRV on the SSB Contest weekend, but did not actively operate the contest. I did make several SSB QSOs. I worked on 12 Feb KB2AH (53/55), K2UYH (34/54) and K5JL (52/54), and on 13 Feb HB9BBD (53/55), OE9ERC (44/55) and ZS6AXT (33/549) SSB to CW. I spent all winter with the 70 cm feed on the dish and tried to be on during the SWs. On 70 cm I added 8 initials and one new country. QSOs were made with F5FLN, F5FEN, DL7APV, K4AR, VE6TA, RW1AW, WB0GGM and WE2Y. Only minimal progress was made on my 24 GHz EME project. I now have a good waveguide switch with very little loss at 24 GHz. I'm playing with all sorts of TWTs that can give a little bit of power at 24 GHz. Rx is working fine, and I will report on my moon noise experiments very soon. The 23 cm feed will remain on the dish until the 2nd part of the DUBUS/REF contest. I will then concentrate my activity on 5.7 and 10 GHz. Please let's coordinate which is the preferably band on Saturday and Sunday. I hate the "wrong band" syndrome - Hi. See you in RIO.

EA8/LA8LF

Anders attempted to be QRV on 23 cm for the 1st REF/DUBUS contest weekend -- The station is 3.7 m, f/d 0.51, homemade dish brought to Lanzarote as air baggage in kit form, including the mast sections. The feed is a VE4MA horn w/screws for circular pol. I have VK3UM auto-trak for pointing. This has all been a 3 year project. Power to feed is 150 W. I listened on 12 March between 2030 and 2200 and heard several stations although I was using linear pol. In the contest I planned to be circular. It is tough trying to set up a 23 cm EME station from a small island like Lanzarote. Especially when one visits for only short stays twice a year. This weekend Murphy did not cooperate. He struck 1st when I was testing the TX chain on Friday before the contest weekend. My HF rig IC-735 blew up. I am using it to drive my transverter. The final amplifier in the IC-735 went bust and took with it the PSU. I have been using this rig for 22 years and have not had a single problem until now. I spent most Friday night and Saturday repairing the IC-735 and it's PSU. I was then ready to test the TX chain again, but Murphy returned. All worked fine with 200 W out into my dummy load for 1 hour. Then I decided as planned to install the cavity (2x7289s) at the back of the

dish. Return loss at the TX port of the feed was more than 30 dB using a "line stretcher" (double stub tuner). When turning on my 1450 V PSU, after having installed the cavity at the antenna, bang... and the cavity was gone. The anode Teflon sheet capacitor was punched-thru by the flash-over. I had no Teflon nor Kapton at hand. I have been using this cavity for many years driving my TH-338 cavity at home with no problem. WX and health conditions were fine. The dish and the RX chain worked extremely well. I heard many small stations. It was fun to be back listening on 23 cm EME after more than 2 years. At least I finished the dish/tower and confirmed that the RX is OK. Next is to improve on the TX to make sure nothing goes wrong next time. I will most probably bring my 30 Kg TH-338 cavity and build a 1 tube driver with 1000 V plate voltage to be safe from flash-over. I still plan to put all this at the back of the dish with only 4 m of 1/2" hardline up to the feed. I plan to return to Norway this week and I might be back in May for 2 weeks if return flights are offered at US\$110-130 as was the case last May (low season). Thanks to all that sent e-mails wishing me luck and requesting skeds. I am not giving up!

G3LTF

Peter's March operation was a bit restricted on both the skeds and contest weekends - I concentrated on 23 cm operation and worked on 12 March OK1KIR, W2UHI and OZ6OL. There was very little activity about. I did hear and called several times SV1OE, but he never responded. I was sorry to miss him. On 18th March I worked OE9XXI, ZS6AXT, JH5LUZ, S59DCD, F1ANH, HB9BBD and HA5SHF. I had to QRT at 1930. On 19th March I couldn't start at moonrise due to tree blockage. I QSO'd SM3AKW, F5PAU, G3LQR, OZ6OL, F5AQC on SSB, CT1DMK, F6CGJ, DH9FAG, LX1DB on SSB and OE9ERC. CWNR were DC6UW, JF3HUC, JA8IAD and DK5MV. Heard were F5PL, OZ4MM, DJ5MN and EA3UM. It is still frustrating to hear weak but workable stations call and work the loud stations and then either not call CQ or call CQ on 1296.0100 with about 4 others! The answer is to believe that most of us medium power stations can tune carefully and have good ears! Just find a spot in the clear and we will find you!

GM4PLM

Simon and his xyl have just purchased a new QTH with 22 acres of land in West-Central Scotland. He is planning to build a big EME station for 23 cm and up. As a result he is looking for a 6 m dish with a surface accuracy good enough for 10 GHz; an az/el control system and a Mount. Simon's e- mail is at:

Simon, GM4PLM

IK2MMB

Sergio's Feb report -- During Feb new initials were added with W1ZX #34 and OK1KIR #35. Basically my whole Feb activity was concentrated only on days 12

and 13, the SSB contest days. On SSB I worked K2UYH, OE9ERC and HB9SV just by chance. The conditions during the weekend appeared medium to poor, and participation in the SSB Contest and in general throughout the weekend seemed low. Still it was a very nice weekend. Station-wise, I now have fully automated AZ moon tracking, but only manual EL control. Moreover I have no EL readout yet, HI! EL adjustment is obtained by the nose method first, and then by looking for the best echoes. If you hear someone checking his echoes a thousand times, its probably me. The winter season is near end, so soon I'll fix the EL stuff. Thanks to I0UGB, K4QI, HB9SV, GW3XYW, W5LUA, DJ9YW, K3HZO, OZ4MM, DJ5MN, F5PAU, DF3RU, OZ6OL and ZS6AXT for their OSL cards.

K6,JEY

Doug (DM03wt) writes -- I have been agonizing about each detail of my station to make sure that it was up to par. I think that the only thing I could add would be mechanical polarization rotation to my four antennas. Has anyone been successful at it? Is it realistic to do? Or are there other answers? Is it better to have 8 antennas or rotate the four I have? I thought that I could rotate each antenna's boom mechanically with a pulley, and slave them to a motor at the elevation rotor. I haven't solved the problem of having the coax twist while doing so. Otherwise I will be content being a relatively QRP station (4 x 25 el K1FO yagis and 500 W) and enjoy the challenge of EME. [A number of stations have been successful at rotating individual yagis. Among them were KB3PD and K3LFO. Regarding the question of bigger vs. rotating, DL9KR's success argues strongly for the bigger. You Jan leads the pack on 70 cm, but has only fixed horz pol yagis!] During the March SW I did fairly good. All my gear worked fine. Nil was heard from DK3WG and DL9NDD, I then QSO'd K2UYH (O/O), nil from DL1YMK, QSO with KD4LT (O/O), nil AL7OB, nil WE2Y, partial 7M2PDT (M/M) - no R's and partial JA4BLC (M/M) - no R's. I am interested in more skeds.

K9ZZH

Dick is QRV on 1296 and worked a number of stations during the contest with only 100 W out. Among those worked were K5JL, N2IQU, OZ4MM and a partial with K2UYH.

KJ7F

Terry is a new station on 70 cm EME. Before the March SW he had already worked DL9KR, N9AB, K5GW, N2IQU, DF3RU, K1FO, DL4MEA, DL9NDD, G3SEK, G4ERG, N4GJV and DK3WG. He is interested in skeds and can be reached at:

Terry, KJ7F

KL7HFQ

Roger did a lot of listening on 432 during the March SW. He heard on 11 March HP3XUG calling Al7OB, but Mike couldn't hear him at all. His echoes were strong all weekend. Roger says he probably could have worked some stations had it not been that the stations he heard were involved in schedules.

LX1DB

Willie is sharing his station with his son, LX2DB. LX2DB did much of the 23 cm operation during the DUBUS/REF Contest. Willie QSO'd on 23 cm during the SW LU8EDR, W7SZ, W7QX, DF3RU, SM2CEW and IK2MMB. Willie is working on his 10 GHz equipment and will be QRV for next leg of the contest on all UHF bands.

N2IQU

Mark has his 23 cm power back to normal (500 W). He is now using a horn on both 23 and 70 cm. The 70 cm horn is linearly polarized with vertical and horizontal switching. Mark reports that he is now hearing and xmitting very well on 70 cm. During the contest he worked 33x? on 23 cm, including WA9FWD, EA3UM and W1QC, but no new ones.

NU77

Rick has not been on for a couple of months, but is still QRV on 5760 and available for skeds. He is putting up 8 yagis for 903 with elevation control and has 600 W.

ON400

Danny ON4AOD writes that he and Luc, ON6JY have been working on become active for a while now. Luc has the 4 m dish up and is received the 1st signals off the moon on 23 cm. No transmission yet. Danny is working on the 10 GHz part. The plan is to be active with 30 W on 3 cm. They hope to be QRV before the summer.

OK1KIR

Antonin reports on his group Feb SW activity. They worked on 432 on 12 Feb at 1104 VK4AFL (O/O) for initial #343 and QG field (44), 1912 UA3PTW (O/O) #344, 2101 VE6TA (O/O) #345, 2131 WB0GGM (O/O) #346 and 2201 W7SZ (O/O) # 347, and on Feb 13 at 2302 AL7OB (M/M) #348. Heard were DF3RU, DJ6MB, G3LTF, K1FO, KB1EYB(?), N2IQU, NC1I, SM3AKW and W7CNK. On 1296 they QSO'd on 13 Feb at 1233 JA8IAD (449/O) for initial #165, 1303 JF3HUC (549/559) #166, 1328 ZS6AXT (559/559), 1333 I0UGB (549/539) #167, 1403 IK2MMB (549/539) #168, 1435 OE9ERC (56/44) JN79/JN47 on SSB, 1555 HB9SV (579/559), 2011 W1ZX (O/O) #169 and state of MD (26) and 2104 W1QC (549/449) #170 and state of NH (27). Heard were DD1XF, DF3RU, DJ5MN, G3LQR, G4DZU, GW3XYW, IK6EIW, HA5SHF, HB9BBD, K5JL, N2IQU,

VE6TA

Grant's (DO33gs) 1296 March results -- I found good conditions on 1296 for the DUBUS/REF Contest. I just wish there were a bit more activity. Weather may again have played a part in keeping some stations off the air. I managed to work the following (all on random): OZ4MM, OZ6OL, SM3AKW, K5JL, F1ANH, OE9XXI, OE9ERC, F6CGJ, W2UHI, K2UYH, N2IQU, W1QC for initial #43, W5LUA, HB9BBD, ZS6AXT, F5PAU, K4QI, W7SZ and W3XS #44. Heard but not worked were W4AD, VE6NA, DJ5MN and JF3HUC. My total was 19x13. I am presently using a 5 m dish with 300 W in the shack. I hope to be on 432 for the next leg of the contest.

VK4AFL

Trevor writes -- I am looking forward to warmer WX in the Northern Hemisphere and with it thawed out antenna systems, etc. The activity in recent months has been very enjoyable, and has provided some new initials: KB0VUK, W7SZ, DL7APV, OK1KIR, JJ1NNJ, SM3AKW, HB9SU and DJ6MB. As cycle 23 approaches its peak, nearly every contact over the last several months has required a lot of polarity correction - usually in the 45 to 60 deg region with just the very odd station workable without Faraday effects. I have yet to work anyone south of the equator! I have noted that a few EME stations are also active on 6 m including myself and I think this year is very likely to be the best one for the cycle.

W5LUA

Al 24' stressed dish was destroyed by a bad storm after nearly 20 years of use. He has move his IMU feed over to a 5 m dish and is QRV again on 23 cm. During the March SW he worked about 17 stations including 3 JAs - JF3HUC, JA8IAD and JH5LUZ. Al says he seems to hear pretty well on the smaller dish.

W7OX

Jerry had a great time on 1296 during the contest. The first night he worked 9 stations, but overslept the Asian window. Stations QSO'd were CT1DMK, F6CGJ, OE9ERC, OE9XXI, OZ4MM, ZS6AXT, F1ANH, K5JL, F5PAU, K2UYH and OE5EYM. Jerry ended with a score of 11x7 and #32 initial on 23 cm.

W7SZ

Larry was QRV in the REF/DUBUS contest on 23 cm and worked 15x11 in the contest and 19 for the week including 6 initials with OK1KIR, LU8EDR, W3XS, F1ANH, F5PAU and W1QC. He heard W5LUA very loud and JF3HUC. Larry notes that he needs VK for WAC.

WA9FWD

John was active on 1296 during the DUBUS/REF Contest and worked 9 stations the 1st night. QSOs were made with K5JL, W2UHI, SM3AKW for an initial (#), F6CGJ, F5PAU, F1ANH, OZ4MM, OE9XXI and N2IQU. John ended with a score of 10x8 for the contest. After the contest he heard nil from DJ5MN on sked and worked VE6TA He now has a new VE4MA feed for 23 cm ready to mount and is working on GI7B amp for 23cm. John hopes to be able to listen on 13 cm during the UHF leg of the DUBUS/REF Contest.

ZS6AXT

Ivo reports - On 18 March, my 1st pass of the Moon, on 23 cm I worked W2UHI, K5JL, OZ4MM, SM3AKW, F5PAU, F1ANH, N2IQU, F6CGJ, OE9ERC and W7QX. Missed were OE5EYM, VE6TA and OE9XXI. On 19 March I added OZ6OL, JH5LUZ, HB9BBD, G3LTF, S59DCD, OE9XXI, IK2MMB, DH9FAG, OE5EYM, G3LQR, F5AQC, CT1DMK, W1QC, KB2AH, W3XS, K2UYH, VE6TA, OE5JFL/QRP, K4QI, W4AD for initial #154 and W5LUA on the horizon. CWNR were OK1DFC, JF3HUC, DL6YDH, HA5SHF and WA5FWD. And on 19 March, my last pass, OSO'd were JF3HUC, JA8IAD, EA3UM, LX2DB, [Does he count as new initial? - Not according to the rules decided some years ago.] DJ5MN, DK5MV and F5PL. CWNR was HA5SHF (many times) and DC6UW. Also heard was ON5,JNS(?). My total was 38x23. This is lower than last year. Signals were generally good with some periods of poor echoes. We had here heavy rain for both days, which soaked my protective plastic over the dish and also water got into my AZ potentiometer, causing the display to be a bit out. I am looking forward to the 2nd part of the contest, on 13 cm. Due to the day time I will be not able to use my CCTV camera, and thus will not be on 6 cm. My AZ-EL indications are not good enough for 6 cm.

K2UYH

I was active only on 70 cm during the March SW. On 11 March at 0130 nil JH0WJF - Noriyuki missed the sked, and QSO'd at 2047 DF3RU (569/559), 2100 K4AR (O/O) for initial #623 and 2130 K6JEY (O/O) #624. This last QSO was a real cliffhanger with no signals heard either way until 2157! We were then able to complete by 2205. The follow weekend I operated the DUBUS/REF Contest on 1296. The 1st night my TV camera went bad. This delayed operation and caused problems later as the new camera was not correctly boresighted. Despite the tracking problems I QSO'd on 18 March at 0128 F6CGJ (559/559), 0202 OZ6OL (559/559), 0207 K5L (559/549), 0220 OZ4MM (559/449), 0229 SM3AKW (559/559), 0243 OE9ERC (579/569), 0250 VE6TA (559/559), 0303 VE6NA (O/339) for initial #173, 0308 OE9XXI (579/569), 0314 F1ANH (569/579), 0326 W7SZ (549/549), 0341 EA3UM (569/569), 0412 W1QC (559/559) and 0437 W5LUA (559/569). I had my tracking and camera problems corrected the 2nd day and worked on 19 March at 0043 HB9BBD (589/589), 0050 CT1DMK (559/559), 0057

ZS6AXT (559/579), 0104 F5PAU (559/559), 0111 OE5JFL (559/559), 0114 W2UHI (569/579), 0119 N2IQU (579/579), 0124 DH9FAG (559/559) #174, 0128 K4QI (579/559), 0133 S59DCD (559/579), 0136 W3XS (559/569), 0200 K9ZZH?(QRZ), 0237 W7QX (449/549) #175 and 0250 OE5EFM (559/559) for a contest total of 27x19. We were back on the moon between 0800-0900 looking for JAs, but heard nil except my own echoes - where was everyone? At 0900 I switched to 70 cm for an extra sked at 0915 with JH0WJF. This time I copied Noriyuki FB (559), but he did not hear me.

NETNEWS

G4RGK, DAVID DIBLEY

WA8ZWG has acquired a 10 m dish.

W7CNK has finished the 1st prototype for a new 23 cm preamp and reports a good NF, but says it still needs a little tweaking.

VE1ALQ has been put out of commission by bad WX, but hope things will clear up soon so that he can be QRV again.

K0YWis working on a dish and mount.

LU6DW cancelled all skeds as he is not QRV.

LU8EDR is QRV and was available for all his skeds.

K6IBY's station is still down with computer problems. He is also moving his 70 cm array to another tower.

AL70Bwas not very active in March. Mike did run skeds with 2 JAs, but heard nil. He plans to be on for the 70 cm part of the Eur contest in April.

SM2CEW in March worked UA3PTW on 70 cm and W5DXL on 23 cm. Peter is looking for info on W5DXL.

VK3UM is reported by SM2CEW to doing well and will be working on a dish feed in a month or so.

VE4MA fixed his TWT p/s only to find that the TWT was bad. Barry is temporarily QRT on the moon.

W2UHI scored 24x16 on 23 cm during the contest, but added no initials.

WB4BKC had hoped to be on 23 cm for the DUBUS/REF contest with a 30' dish at Woodbury, GA available to the Georgia Tech Radio Club, but found that it was closed down for the spring break.

W7EME has acquired a 7 m dish from AL7OB.

K5JL had a good time during the Eur contest despite high rain static. He reports hearing lots of JAs calling W7QX. Jay switched calls to W5ORH during the JA window.

W5ZN is waiting better WX before he can repair his antennas.

W1QC was active during the contest on 23 cm and worked 19 to bring him to initial #36.

DK3WG has not been active on 70 cm this month and instead concentrating on 2 m during the contest.

W4AD had a great time on 23 cm during the contest and scored 11x9. He notes that he has a very limited window.

KB8RQ had high winds, which prevented operation in March. He hopes to be QRV on 70 cm for the contest in April.

FOR SALE

DH1SBJ has 2 tested TWTs (Varian VTR-6201), 2-7 GHz, 200 W out with about 50 dB of gain. They are easy to operate single collector tubes. Contact Rolf at email:

DH1SBJ

W7QX has a B/W monitor and camera for sale.

WA9FWD has some 1/2" Heliax jumpers in 5' to 15' lengths with DIN connectors for sale. John is looking for info on a Varian TWT, VYJ-2646.

NU7Z is looking for 1 or 2 HP-477 thermistor mounts.

N7EIJ is looking for 2 or more 30LBX antennas.

TECHNICAL

I recently discovered some unpublished technical notes written by Dick, W2IMU in response to a discussion on using part of my 28'dish as a reflector for 10 GHz operation. The whole 28' reflector is too big to be easily pointed and does not yield gain proportional to its. In addition the surface accuracy would be better for a portion of the reflector relative to the whole, and could be easily illuminated in a fashion similar to an offset reflector. I believe his notes will be of general interest and are shown at the end of this NL.

A letter from W2IMU to K2UYH.

Second part.

The details.

FINAL

- -- Time is running out to get your reservation and material in for the RIO 2000 Conference. This is an event you don't want to miss! Please help by getting your material to Don ASAP.
- -- There are not too many skeds this month because of the contest. Many stations do not want skeds on a contest weekend. In addition there is a penalty in the DUBUS/REF Contest for QSOs that were the result of skeds.
- -- Although the print distribution of this NL appears to have stabilized at little below 100, there is no doubt that the majority of you receive the NL by electronic form, either by e-mail or by down load from the WEB. It is now possible for me to include more of the graphics in the e-mail addition. Many e-mail subscribers do not want the additional graphics because of the added down load time. Another possibility would be for me to supply the NL in PDF format. I would appreciate hearing your comments on the desirability of adding graphics to the e-mail version, and general suggestion for how the NL can be improved.
- -- The EME calendar is starting to fill with many interesting events. Don't forget F1ANH's 1296 EME Tests on 1 and 2 April at the French VHF-UHF-SHF meeting. Activity will start at 0700. The 2nd leg (432 and 13 cm up) of the DUBUS/REF Contest of course follows this, which also coincides with this month's SW. Then we have the OX2K Greenland dxpedition to look forward to on 29 May to 5 June. I also know that many EMEers are planning to attend the Dayton Hamvention, 19-21 May.

-- That's the news for this 29. Please keep the reports coming in. We need more technical material! I hope to CU off the moon during the contest on 70 cm.

73, Al - K2UYH



APRIL SW SKEDS

8	Α	P	R	Ι	L

2000z

Time	432.040	1296.050	2304.050				
0100z	VK4AFL-WE2Y						
0130z	KJ7F -WB0GGM	JA8IAD-W7QX					
0200z		JH5LUZ-W7QX					
0230z		VK5MC -W7QX					
0930z			OK1KIR-JA8ERE				
1000z			OK1KIR-JA8IAD				
1030z			OK1KIR-JH3EAO				
1100z			ON5RR -OK1KIR				
1500z			OH2DG -OK1KIR				
1530z			IK6EIW-OK1KIR				
1600z			OK1KIR-RW3BP				
1700z	WBOGGM-DL8OBU						
1730z	K6JEY -DK3WG						
1800z	WBOGGM-DL1YMK						
1830z	WB0GGM-ON4KNG		VE1ZJ -OK1KIR				
1900z	WBOGGM-DJ3FI		WA9FWD-OK1KIR				
1930z		W7QX -LU8EDR					
2000z	WE2Y -PY5ZBU						
9 APRIL							
Time	432.040	1296.050	10368.100				
0030z	K6JEY -WB0GGM						
0100z	K6JEY -WE2Y						
1130z		G3LTF -JA8IAD					
1630z			OH2AXH-OK1KIR				
1700z			S57UUU-OK1KIR				
1730z		G3LTF -SV10E	RW3BP -OK1KIR				
1800z		LU8EDR-G3LTF					
1830z		W1QC -G3LTF	LX1DB -OK1KIR				
1900z		KD4LT -OH2DG	I5PPE -OK1KIR				
1930z			VE4MA -OK1KIR				

KJ7F -KD4LT DL2LAC-OK1KIR

Learn about the upcoming EME Symposium. Most recent Schedules from Klaus, DL4EBY **Lunar Calendar for 1999 prepared by G3SEK Netnotes by K1RQG Leave Contest Info or Comments to Allen Here** This information was obtained from: Scott, KD4LT **Return Top Page** Rein, W6/PA0ZN 19990615